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Mental Qualities and Employed Mental Techniques of Young Elite Team Sport Athletes

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Research on the psychological characteristics of elite performers has primarily focused on Olympic and World champions; however, the mental attributes of young developing and talented athletes have received less attention. Addressing this, the current study had two aims: (a) to examine the perceptions held by youth athletes regarding the mental qualities they need to facilitate their development and (b) to investigate the mental techniques used by these athletes. Forty-three male youth rugby players participated in a series of focus groups. Inductive content analysis revealed 11 categories of psychological qualities, including enjoyment, responsibility, adaptability, squad spirit, self-aware learner, determination, confidence, optimal performance state, game sense, attentional focus, and mental toughness. Techniques employed included personal performance strategies, reflection on action, taking advantage of a supportive climate, and team-based strategies. Findings are discussed in relation to their implications for mental skills training program development and evaluation in the case of youth elite team sport athletes.

Keywords: mental skills, needs analysis, youth athletes, team sports

A popular focus of sport psychology consultants over the past 4 decades has been the provision of mental skills training (MST) with athletes of various ages and competitive backgrounds. Vealey (2007) stated that MST is the learning and implementation of traditional cognitive behavioral techniques “with the objective of assisting sports participants in the development of mental skills to achieve performance success and personal well-being” (p. 287).

While empirical studies have shown MST to be effective in fostering greater mental skills in athletes from a range of sports (e.g., Beauchamp, Halliwell, Fournier, & Koestner, 1996; Sheard & Golby, 2006), there is often little rationale for the specific mental skills being targeted. According to Taylor (1995), any psychological intervention should take into account three factors: (a) the physical, technical, and logistical demands of the sport; (b) the psychological demands of the sport; and (c) the specific needs of the athlete(s).

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In addition to these factors, an important consideration within MST that is often overlooked is the distinction between mental *techniques*, mental *skills*, and mental *qualities*. Mental qualities are psychological characteristics displayed by athletes that facilitate optimal performance (e.g., robust confidence, appropriate attentional focus). Vealey (1988) differentiated between the mental skills (e.g., maintaining confidence, refocusing) that regulate those mental qualities, and the mental techniques (e.g., self-talk, relaxation), employed to develop those skills. For example, a state of high self-confidence is a quality to be attained, rather than a skill. The skill is the capability to regulate and maintain that self-confidence, which is theoretically achieved through the use of specific mental techniques.

With this distinction in mind, the aim of an MST program is to develop one or more mental qualities for enhanced athletic performance and personal well-being through the implementation of mental techniques. To this end, research on sport expertise has sought to identify, among other things, the mental techniques, skills, and qualities that characterize elite performers. Although this work has highlighted a broad range of attributes, Krane and Williams (2006) concluded that a number of common mental characteristics exist related to peak performance. These include the mental skill of self-regulating optimal arousal and the mental qualities of (a) high self-confidence and expectations of success, (b) feeling in control, (c) focus on the present task, (d) viewing difficult situations as challenging and exciting, (e) productively perfectionistic, (f) positive attitudes and cognitions about performance, and (g) strong determination and commitment.

In addition to those most commonly cited psychological characteristics, other qualities found to be important to elite adult athletes include experiencing enjoyment in one's participation, being disciplined, possessing automated coping skills and mental toughness, being prepared, being competitive, regular use of mental techniques, optimism, a lack of fear, sport intelligence, and a willingness to sacrifice (Durand-Bush & Salmela, 2002; Gould, Dieffenbach, & Moffett, 2002; Gould, Guinan, Greenleaf, Medbery, & Peterson, 1999; Grove & Hanrahan, 1988; Jones, Hanton, & Connaughton, 2002; Mahoney, Gabriel, & Perkins, 1987; Orlick & Partington, 1988). In support of these findings, numerous studies have been able to distinguish elite from nonelite performers by the quantity and quality of such attributes (e.g., Golby & Sheard, 2004; Orlick & Partington, 1988).

As suggested by Taylor (1995), the goal of research into the psychological characteristics of elite sport performers is to understand the needs of athletes and thus tailor psychological interventions accordingly. According to Visek and colleagues (Visek, Harris, & Blom, 2009), "formal assessment of the needs and psychological skills of team and individual athletes is a vital tool in the provision of services with a youth sport population" (p. 280). Guidelines for comprehensive assessment and classification of athlete(s) exist and have gained substantial support (see Gardner & Moore, 2005, 2006) among clinical sport psychologists. Although individual studies using such assessment and classification have been conducted (e.g., Lutkenhouse, 2007), the literature to date is in need of (a) additional identification of the psychological qualities associated with optimal development in young athletes and (b) the examination of the mental skills and techniques employed by young *team* sport athletes.

Regarding the first issue, numerous studies have focused on the desirable mental qualities of elite adult athletes rather than those deemed pertinent to young

developing athletes. Côté's developmental model of sport participation (DMSP) highlights the necessity to consider the athlete's developmental stage when designing sports programs (Côté & Hay, 2002). According to the DMSP, young athletes progress through sampling, specializing, and investment stages of sport participation. Each stage of the DMSP is characterized by differing psychological, social, and physical demands and challenges.

Sampling represents the first stage in a young athlete's sport participation. This stage (approximately 5–12 years of age) is typified by engagement in a wide range of sports and activities with the focus being on experiencing fun and excitement. During the sampling years, many of the fundamental physical skills such as running, jumping, and throwing are developed. When children move into the *specializing* stage (approximately 13–15 years of age), there is typically a reduction in the number of extracurricular activities in which they engage, and they begin to specialize in terms of their sport participation. Although fun and excitement are still assumed to be fundamental components of the sporting participation, a growing emphasis on performance emerges in this stage. The final stage of the DMSP is *investment* (approximately 16+ years of age). The increased commitment to one sport manifested through intense practice and the deliberate development of skills and competitive strategies is a key component of the investment years. Within this final stage, play activities are substituted with intense practice. It is reasonable to assume that the mental qualities needed by young developing athletes will vary as they move through these developmental stages. Such differences highlight the importance of identifying and targeting the needs of young athletes in MST programs rather than generalizing from adult populations.

The Present Study

A key consideration for the focus of MST programs, as athletes progress through the stages assumed in the DMSP, is the distinction between the psychological characteristics needed for the acquisition of expertise and those necessary to manifest (i.e., demonstrate) expertise (Baker & Horton, 2004). A major focus of the current study was to describe the psychological needs of young talented athletes by investigating the fundamental mental qualities perceived to be necessary to acquire expertise and optimize their athletic development within the DMSP's specializing stage. As previously stated, this stage is characterized by a reduction in the number of extracurricular activities in which the young person participates and an increased emphasis on developing sport competence and competitive performance.

Holt and Dunn (2004) noted that "the majority of talent development research in sport psychology has been retrospective and descriptive in nature" (p. 200). Research on youth athletes can provide more pertinent and immediate insight into the experience of youth development (Durand-Bush & Salmela, 2002). For example, Gould and colleagues identified characteristics of burnout that were particularly salient to developing junior tennis players (Gould, Tuffey, Udry, & Loehr, 1996). When designing an effective MST program, the identification of the needs of the participating group of young talented athletes is far more valuable than the assumed needs derived from studies with elite adult athletes (Taylor, 1995).

A second drawback of the MST literature is that to our knowledge, there has not been a needs analysis regarding the desired psychological qualities of young team sport participants. Both Taylor (1995) and Boutcher and Rotella (1987) argued for the importance of structuring a MST program in line with the unique demands and characteristics of the targeted sport. Furthermore, Baker and Horton (2004) attribute much of the ambiguity within the MST literature concerning salient psychological qualities to a lack of attention to the unique requirements of different sports. Thus, it would appear that a careful analysis of the psychological demands of varying types of sport activities is crucial to a more thorough understanding of the nature and development of key mental qualities in young athletes.

With these two limitations in mind, the current study aimed to examine young elite team sport athletes' perceptions and understanding of mental qualities deemed most relevant to their sporting participation. Further, this study also examined the reported mental techniques employed by young elite team sport participants to promote their athletic development. Using a qualitative methodology, the present research involved focus group interviews with adolescent athletes from a regional rugby union development program.

Method

Participants

Participants ($N = 43$; M age = 15.9 years, $SD = 0.8$) were purposively recruited from two under-16 male rugby union regional development programs in the United Kingdom. These athletes were considered to be in the specializing stage of development according to the DMSP (Côté & Hay, 2002). This stage is characteristic of the participant groups' age and increased time and commitment to their sport with a focus on specific performance development activities. Participants were contacted through the national governing body and each received an information letter and a parental consent form before the study commenced.

Data Collection and Procedures

Data were collected through six focus group interviews at the start of the season, each involving 5–10 participants and lasting approximately 45–60 min. Prior informal meetings with the sample had suggested that many of the constructs under investigation (i.e., mental qualities and mental techniques) had not previously been consciously considered by the participants. Morgan (1997) suggests that when examining latent cognitions, focus groups are preferable to individual interviews as a more efficient means of in-depth data collection through group interaction.

Each focus group consisted of preexisting groups of players from the same regional development program and age group. Familiar groups were employed to encourage participants to feel comfortable while discussing comparable experiences (Rabiee, 2004). All focus groups were conducted by the same two trained interviewers, each adopting either the role of moderator or observer.

All focus groups were both audio and video recorded. Audio recordings were subsequently transcribed verbatim, resulting in approximately 42,000 words of text. The use of videotape provided an additional means of detecting body language

and nonverbal communication to add a greater understanding of the data when analyzed (Litoselliti, 2003).

Interview Guide

The purpose of the current study was to gain insight into the cognitions and experiences of young rugby players regarding the required mental qualities of their sport and techniques employed for developing the psychological aspects of their game. Although previous research has identified a number of characteristics likely to emerge from this study, an exploratory investigation of the participants' phenomenological description of their mental qualities and technique utilization was the goal of the interview guide. Following the recommendations of Rubin and Rubin (2005) and Litoselliti (2003), the interview guide incorporated open and neutral questions with additional probes to gain greater detail during participant discussions.

The interview guide was comprised of five sections, beginning with a welcome from the moderator. This introduction was read from a predetermined script outlining the purpose and ground rules of the focus group (e.g., all participants must allow others to speak without worry or coercion). Second, an introductory set of questions was posed that aimed to relax the participants and encourage them to discuss their responses in depth (e.g., "What is it about rugby that you particularly enjoy?"). Third, a performance profiling approach (Butler & Hardy, 1992) was adopted to obtain a list of the mental qualities perceived to be salient for youth athlete development in rugby union. To elaborate on the role of these proposed mental qualities, follow-up questions and probes were included. For example, if an athlete had indicated confidence as an important mental quality, follow-up probes were employed such as, "When you are confident, what thoughts and feelings do you experience?" and "Are there any situations in which this confidence is particularly important?" Where appropriate, participants were encouraged to use examples from their own experience to explore responses to such questions.

Fourth, the participants were asked which mental techniques or strategies they used (and when) to gain control over or facilitate these mental qualities. Probes for understanding the use of mental techniques were included, for example, "Can you describe a time when you worked on your [mental qualities] through your use of [mental technique]?" and "Does your use of [mental technique] alter in different situations?" Finally, the observer summarized the dialogue and provided participants the opportunity to refute or expand on any aspect of the discussion.

Data Analysis

Inductive content analysis was defined by Patton (1990) as "the process of identifying, coding, and categorizing the primary patterns in the data" (p. 381). Similar to previous qualitative studies in the field (e.g., Gould et al., 2002; Scanlan, Stein, & Ravizza, 1989, 1991), this method was employed to provide a descriptive account of the themes and patterns that emerged from the participants. The analysis followed the two-step method outlined by Côté, Salmela, Baria, and Russel (1993) to organize and interpret qualitative data. After reading and rereading transcripts, meaningful text segments or raw data units were identified or coded (step one). These units represented a single idea or piece of information. Categories were then

created by regrouping similar raw data units (step two). These categories were used to restructure the data into manageable themes which in turn reflect the greatest possible internal homogeneity and external heterogeneity within categories.

Two investigators separately carried out Côté et al.'s (1993) two-step process using NVivo7 software. The investigators then jointly reassessed the coding and categorizing of each data unit until agreement was reached, revisiting the original data when necessary. This process of consensual validation through agreement has been employed in similar studies (e.g., Gould et al., 2002). The robust nature of data coding and categorizing was further confirmed by discussing the themes and related raw data with two experienced sport psychology researchers not involved in the data collection and analysis.

Results

The current study investigated the perceptions of young rugby union players about the mental qualities required in developmental rugby programs and the mental techniques employed to facilitate these qualities. Specifically, they were asked which mental qualities they perceived to be most salient for young players' development. The players were also questioned about which mental techniques allowed them to regulate their mental qualities.

Mental Qualities

Participants discussed a broad range of mental qualities relating to competitive performance, training, and their lifestyles as youth athletes. The data analysis revealed 503 raw data units. These units were categorized into 11 higher order themes (described below) made up of 31 lower order themes (Table 1).

Enjoyment. A sense of enjoyment was described as the continued fun and satisfaction derived from sport participation and development within an elite performance program. This quality was illustrated by a participant who said, "Enjoyment, just you know, it's so competitive. You've always got to have that enjoyment, and you're still playing the sport that you kinda, you want to do well in. So you've got to always be enjoying it."

Responsibility for Self. The second higher order theme was responsibility for self, considered as the ability to self-manage and conduct oneself in a manner appropriate for a developing athlete. Six second order themes contributed to the overall category, including achieving a life balance between rugby and other significant life domains. One participant noted, "You've got to get the balance right, you know. There's no point just doing rugby, rugby, rugby, rugby, 'cause... 'cause you'd get bored of it."

Responsibility for self also included maintaining an athletic lifestyle, which involved making everyday decisions conducive to developing and optimizing athletic performance. For example, one participant recognized that

It's really all about lifestyle choices. You can go out with your mates and get, I don't know, get drunk or you can . . . you can do some exercises at home. Do some weights. End of the day it's your choice.

Table 1 The Mental Qualities Perceived as Important for the Development of Youth Athletes

Higher Order Theme	Lower Order Theme
Enjoyment	Enjoyment
Responsibility for self	Life balance
	Athlete lifestyle
	Prepared
	Respect
	Role model
	Sportspersonship
Adaptability	Adaptability
Squad spirit	Leadership
	Effective team player
	Social skills
	Peer support
Self-aware learner	Go getter
	Take criticism
Determination	Desire to improve
	Desire to succeed
	Work ethic
Confidence	Confidence to improve
	Confidence to win
	No fear of failure
	Physical confidence
	Self-efficacy
Optimal performance state	Optimal performance state
	Controlled aggression
Game sense	Creativity
	Decision making
	Effective game communication
Appropriate attentional focus	Appropriate attentional focus
Mental toughness	Leadership under pressure
	Determination under pressure
	Confidence under pressure
	Optimal performance state under pressure
	Game sense under pressure

Being mentally and physically prepared for training and competition was another subtheme in this category. One participant noted that “Preparation is everything. Without preparation none of us would be here.” Responsibility for self also included showing respect for all those involved in an athlete’s sport participation, being a role model for peers and younger players, and showing good sportspersonship on and off the field.

Adaptability. The capacity to positively adapt to new coaches, playing styles, environments, and sporting pressures is known as adaptability. Adjusting to changing environments is essential for youth athletes who likely play for a number of teams as they progress through ever increasing competitive standards with differing coaches, teammates, and motivational climates. One player spoke of how, when being selected for a representative squad, “there’s a lot of like new

things that come into it when training and also off the pitch. So you kind of like, you've got to kind of adapt to it."

Squad Spirit. The fourth mental quality was squad spirit, the ability to foster both social and task cohesion for the enhanced performance and well-being of the whole team. An individual displaying squad spirit was thought to demonstrate leadership, be an effective team player, have good social skills, and be able to provide social support to other players. For example, while discussing leadership, one participant noted,

You know the captain's mentally no different while the ball's in play, but when their team scores it really shows why he's captain . . . 'cause you don't pick the best player in the team to be captain. You pick the guy that you know will pick everybody up.

Another conversation between participants highlighted the requirement of social skills:

Participant 1: "You got to have a sense of humor as well."

Participant 2: "Does that make you a good player?"

Participant 1: "Well yeah, it makes you a good *team* player."

Although participating in an individual player development program, these players recognized that effective squad spirit is related to both task and social cohesion, as noted by the following statement:

I think that's a big point. Being mates with people and getting to know them. Because especially, like, this set up I didn't know many people, but then when you get to know people, like now, it's like way easier to play with them because you know their abilities, and you know their strengths and their weaknesses as well.

Self-Aware Learner. The fifth mental quality was self-aware learner, defined as the awareness and ability to initiate engagement in activities aimed to facilitate one's own development. Closely tied to the responsibility for self theme, the qualities of a self-aware learner specifically related to enhancing performance.

Two lower order themes comprised the overall quality of being a self-aware learner. First, a self-aware learner was deemed to have the capacity to positively frame and react to criticism related to performance. This was illustrated by participants as recognizing the need to "take criticism," "accept when you're wrong," and "be open to learning from your mistakes." Second, a self-aware learner was thought to be a "go-getter," someone who actively seeks out and applies knowledge pertaining to performance enhancement. When discussing his development, one participant noted, "You got to go out and do something to change it."

Determination. The athletes frequently mentioned terms such as determination, commitment, motivation, and work ethic; however, they appeared to have difficulty distinguishing between them. During the second stage of analysis, *determination* was found to be an umbrella term for this category, indicating desire and a commitment to their performance and development through intense effort.

Determination consisted of three lower order themes: the desire to improve, the desire to succeed, and an intense work ethic. The desire to improve was a task oriented desire and commitment to develop their rugby performance, illustrated by one participant as “You’ve got to be willing to learn. ‘Cause you’re always learning a lot of new stuff and you’ve got to be ready like to take it in.” The desire to succeed was the hunger to win and be successful within the competitive program. For example, when asked about crucial mental qualities, one participant simply said, “Have the will to win . . . determined to win,” while another participant stated, “You’ve got to play to win.” Finally, a behavioral component of the determination construct was perceived to be reflected in a strong work ethic. This work ethic was demonstrated through the dedication of time and effort to develop their abilities in and outside of structured training. For example, one player spoke of the importance of a work ethic by stating,

You just give it your 100% and you push yourself harder than you’ve pushed yourself before. . . . You’ll push yourself harder than the other people at that training session, and you just got to sort of try and stand out.

Confidence. When reflecting on the relative importance of different mental qualities, one participant suggested, “Confidence, confidence is probably the main one.” Confidence was defined as the self-belief in one’s ability to achieve success, promote oneself, and develop through the active engagement in the program.

The overall theme of confidence was made up of the five lower order themes: confidence to improve, confidence to win, self-efficacy, no fear of failure, and physical confidence. Confidence to improve was a belief held by players relating to their ability to continually improve skills and overall performance. For example, one athlete stated,

My dad like tells me what I’ve done well after a match. . . . So you just sort of like, that gives you a confidence boost because . . . you just sort of think about all your skills and how you can push to your full potential.

Confidence to win was simply, “having the belief that you’re going to win.” Self-efficacy was a belief in one’s technical abilities to perform specific tasks. One participant described self-efficacy as this: “You’re sure of yourself and you know that, you can do something so you can set yourself a target to do it.” No fear of failure was the absence of worries relating to performance, as one player mentioned,

You don’t want to mess up when all the pressure’s on you. And it’s not until you learn how to sort of manage those kind of areas, and there’s this sort of psychological aspect and often you’ll start playing better once you start being able to understand that.

Finally, the last subtheme was physical confidence, which described having self-belief in one’s capacity to deal with the physical demands of rugby union. One participant said, “Like, have the [guts] to like smash somebody . . . without like the fear of getting hurt.”

Optimal Performance State. Optimal performance state was being able to repeatedly achieve the emotional and physiological state necessary to achieve

performance excellence. One participant recognized the importance of “controlling your mind before a game, and not getting too nervous and not getting too psyched up or anything. . . . It’s being able to control your emotions before you play.” One separable component of the optimal performance states theme was controlling aggression. While discussing emotions, one participant noted that a rugby player should “Know your limits . . . know when to stop if you’re angry . . . know where the line is.”

Game Sense. A player’s game sense is an implicit understanding and awareness which facilitates purposeful and effective game play. One participant stated, “A good rugby brain.” Another stated, “You don’t have to be academic . . . you have to be practically intelligent. You know, knowing what you have to do on the pitch . . . when to do it, where to do it.”

Effective game sense was comprised of the three lower order themes of creativity, decision making, and game communication. Creativity was the ability to create novel strategies of play and having a willingness to implement them in a game situation. One participant said it was “Having vision. Being imaginative.” Another participant expressed how creativity contrasted with fear of failure, noting, “You’ve got to try new things. Like, not just worry about them if they fail or not. Try and do stuff.” Decision making was viewed as, “Someone who can make the right decisions whether they have the ball or not.” Finally, communication was perceived as another fundamental mental quality, as a number of players stated that “You need to be a good talker,” “You’ve got to communicate,” and “in training, before the game, in and after the game. Just always talking to each other.”

Appropriate Attentional Focus. Having an appropriate attentional focus was the ability to regulate the appropriate intensity and direction of one’s attentional focus at a given time. As expressed by one of the participants, young developing rugby players need to be “focusing on the game and trying to get any thoughts about anything else out of your head. So you’re completely focused on what’s about to come up.” In addition, a number of participants identified that “There’s times when you need to switch off and just basically recover. You’ve just got to learn that.”

Mental Toughness. Although mental toughness was a construct repeatedly raised by participants, few views were freely offered to define the construct. With probing, mental toughness was defined as the maintenance of one’s own optimal mental qualities in the face of adversity and pressure. One participant said, “It’s being able to deal with large amounts of pressure.”

Probing the meaning of mental toughness uncovered the most salient constructs required while under pressure. These were deemed to be confidence, determination, game sense, leadership, regulation of performance state, and regulation of attentional focus. For example, when citing determination under pressure, one participant noted, “If you’re losing and stuff, you have the will power to actually keep playing, instead of just giving up.” Another discussed confidence under pressure when he said, “If you’re confident then you keep your head up high, and you just keep going with it. But you don’t let anyone, whatever anybody says, you don’t let that affect your confidence at all.”

Mental Techniques

When regulating their mental qualities, these young athletes referred to a broad range of mental techniques employed in training and competition. Data analysis revealed 268 raw codes, categorized into four higher order themes made up of 23 lower order themes (see Table 2). As none of the current study participants had ever received any formal sport psychology support, the techniques discussed can be considered intuitively developed strategies related to the sport demands and environmental structures placed upon them.

Table 2 The Mental Techniques Employed by Youth Athletes to Develop Their Mental Qualities

Higher Order Theme	Lower Order Theme
Personal performance strategies	Compartmentalization
	Goal posting and striving
	Music
	Physical preparation
	Process orientation
	Relaxation
	Routines
	Self-talk
	Skill based warm up
	Stress avoidance
	Vicarious experience
	Visualization
	Huddles
Team strategies	Prematch team talks
Supportive climate	Role clarification
	Autonomy support
	Coach support
	Parental support
	Peer support
Reflection on action	Positive challenge
	Coach supported review
	Parent aided review
	Video analysis

Personal Performance Strategies. Personal performance strategies are individualized mental techniques employed by athletes to cope with pressure and optimize their performance state. This category encompassed techniques traditionally incorporated into MST such as goal setting, adopting a process orientation, relaxation, the use of routines, self-talk, and visualization. However, participants also referred to the use of techniques less commonly employed in MST. For example, *compartmentalization* was the strategy of separating rugby performances over time. One participant noted, “You’ve got to realize that every game is a separate game . . . you just got to focus on this is a new game. You know, what you played in the last one’s nothing to do with what you’re doing now.”

Participants reported that they used vicarious experiences by observing their teammates. As well as a source of confidence (Bandura, 1977), observation of one's teammates was also employed to enhance persistence and effort through social facilitation. As one athlete noted, "If you look at someone who is putting their heart into it that usually says 'well they're doing it, I can do it as well. I can push myself.'" Personal performance strategies also included stress avoidance, as one participant noted, "You try and just forget about it all."

Supportive Climate. The participants' responses regarding a supportive climate reflected the young rugby players' adaptive responses to social support structures for the broad range of player needs. This category included taking advantage of, or responding to, the environmental dimensions of autonomy support and positive challenge as provided by coaches, peers, and parents. Autonomy support was highlighted as, "Being given responsibility for yourself," and "People like my parents, they don't put any pressure on me." Positive challenge was illustrated by one player who stated, "Being put under that sort of pressure at different times and within games . . . the more you do it, the more you start to cope with it and you start to learn how to deal with it."

In the view of the players, the role of different significant others within their participation was clearly distinguished within a supportive climate. Peer support focused on emotional support provided through informal interactions. For example, "If you're seen to be doing something well and your team mates acknowledge it as well that will help you boost you confidence." Coach support referred to the informal support provided by support staff through positive reinforcement and persuasion. One athlete stated, "It comes from a coach as well because my coach will say to me before a game 'I think you're a really good player' and then that gives you confidence for a game to play your best." Finally, parents were perceived to offer more comprehensive support to players, including financial and other tangible resources as well as a role in listening, reflection, and supporting the athlete's confidence and emotional state. One participant noted that "When [parents] are taking you places they obviously must believe that you have some sort of talent and are not just wasting your time . . . which is a good feeling."

Team Strategies. Participants noted a number of team structures that were perceived to contain strategies aimed to enhance players' psychological qualities and performance. These strategies include team huddles led by players, prematch team talks led by the coach, and role clarification. Prematch team talks are indicative of how team strategies can be both formal and informal. Participants noted, "When you warm-up everyone's helping each other, and just talking to each other, and calming everyone down and getting them ready." In addition, formal talks as part of a routine were also referred to, such as the statement, "Good team chat before a game . . . you all feel up for it and more confident so probably play better." Finally, role clarification was the recognition of roles and leadership positions within a squad or team. The identification of player roles was considered very important because, "everyone has a role, everyone's doing that role, everyone's filling it. If one person's not doing their job, that's when the team falls to bits."

Reflection on Action. Reflection on action involves players' reviewing performances to gain an understanding of their demonstrated strengths and

weaknesses. Lower order themes within reflection on action include coach supported review, parent aided discussion, and video analysis. A coach-supported review is the postperformance reflection facilitated by the coaching staff and entailed the coach(es) working with athletes on an individual basis. This is often an informal and unstructured review of training and competition, as one participant said,

Right after the game it's really fresh in your mind, and it's a really important time to get feedback on it . . . you look back on where things went well and where things went wrong, and how you can develop yourself . . . we'll always have a chat after the game with our coaches.

Parents were recognized as a great resource for reflection due to their engagement in and proximity to their child's sporting participation. One participant noted that he would, "sit down and just talk. If my dad came and watched the game . . . talk to him about doing things well and stuff." Video analysis was a formal technique employed at a team level rather than just for the individual player. One participant noted, "we have some of our games recorded on video so you can see as a team what you've done well and need to work on not just on your own."

Discussion

A number of studies have investigated the mental qualities deemed important to sporting achievement among adult elite athletes; however, little is known regarding the needs of youth athletes and in particular young team sport athletes. This study aimed to address these voids in the literature by investigating the mental qualities viewed as salient to young elite rugby players and the mental techniques they employ to facilitate the development of such characteristics.

In support of previous research with adult sport participants (Durand-Bush & Salmela, 2002; Gould et al., 2002; Krane & Williams, 2006), a range of common mental qualities were perceived as crucial to youth athletes' sporting development. For example, determination has long been held as the foundation of sport performance and achievement (Duda & Treasure, 2001) and is a quality repeatedly cited as required for elite performers (e.g., Gould et al., 2002). A number of qualities not commonly found in previous studies with adult athletes also emerged. These novel attributes seem particularly relevant to the developmental stage and sport type captured in the current sample of young elite rugby union players. The emergence of qualities such as squad spirit and elements of mental toughness (e.g., leadership under pressure) are reflective of the demands of team sports. These themes capture the requirement for young athletes to develop within multiple competitive and pressured social environments, which was considered a crucial component of their sport experience and development.

Higher order themes of adaptability and self-aware learner are constructs that have not previously been identified in past work on psychological skills and may be tied to the developmental stage of the targeted group of young athletes. *Adaptability* represents the need for athletes to be able to adjust to the various, and often conflicting, demands placed upon them in different environments. The entire sample played for their regional development team in addition to their usual school and/or club. As well as representing variability in competitive standard, the various

teams were composed of different players, coaches, and training and competition locations; all forming unique psychosocial environments in which their roles, expectations, and athletic identity might differ. The current sample of young elite rugby players perceived that an athlete's capacity to adjust to differing environments so that they continue to perform and learn to a high standard is crucial if development is to be optimized and participation sustained.

Closely related to adaptability is the construct of *self-aware learner*. The concept of self-aware learner reflects the need for young athletes to take responsibility for their own development rather than being a passive receiver of knowledge. The study participants considered this construct to be a crucial attribute for lifelong development. This is in line with the self-regulated learning literature, which has shown that individuals who actively engage in their own development show greater sustained achievement over time (Zimmerman, 2002). The current findings therefore suggest that designers of MST should consider including self-regulation processes that support the promotion of self-aware learning in athlete-focused psychological interventions (Duda, Cumming, & Balaguer, 2005).

Related to self-regulation are a number of broader mental qualities noted by participants that function beyond their sport performance. The higher order themes of responsibility for self and squad spirit incorporate lower order themes such as life balance, athlete lifestyle, respect, role model, sportpersonship, social skills, and peer support. These mental qualities go beyond the playing field and may be classified as life skills (Danish, Petitpas, & Hale, 1993). The mental qualities deemed necessary by the current sample support previous work examining the life skills required by youth athletes (e.g., Jones & Lavalley, 2009) and illustrate the importance of considering the larger social context in which youth athletes develop (Gardner & Moore, 2005, 2006). These cumulative findings are indicative of a growing emphasis on the role of sport psychology to support the development of a broader set of psychosocial competencies within youth athletes beyond that of simply sport performance (e.g., Danish, Petitpas, & Hale, 2007; Gardner & Moore, 2005, 2006; Visek et al., 2009). A consideration of the athlete's developmental stage and broader social context also makes a strong argument that sport psychologists working with competitive youth athletes should possess a specific competency in developmental psychology (Shaffer & Kipp, 2009) and developmental psychopathology (Rutter & Sroufe, 2000), instead of simply believing that training in adult sport psychology sufficiently prepares one to work with children and adolescents.

The recognition of life skills as an important component of the list of qualities marking positive development in youth athletes is likely a concomitant facet of the developmental stage of the current sample. The present sample of young elite rugby players could be considered to be in the specialization stage in their athletic progression. According to the DMSP model (Côté & Hay, 2002), the developmental stage of an athlete's sport participation influences his or her psychological, social, and physical engagement. While in the specializing stage, during which the number of extracurricular activities may be dropping, it is important to be aware that young athletes of this age and competitive level are also faced with increasing academic expectations and demands (e.g., the time required to complete homework). Moreover, such athletes are at the heart of that transitional period of physical and emotional development when the focus is on trying to "grow up" and meet the responsibilities and roles of a mature adult. Research

in developmental psychology (Lerner et al., 2006) has highlighted adolescence as a period of biological, cognitive, psychological, and social transition within a broader life context.

The sport and life demands placed upon youth athletes within this transitional period may result in a heightened requirement for particular mental qualities, such as the development of responsibility for self and becoming a self-aware learner, to an extent not previously experienced in their sport careers. Further, it might be the case that athletes in the specialization stage (approximately 13–15 years of age) may be at the ideal “window of opportunity” for developing such attributes when compared with their older athlete counterparts. With this possibility in mind, it is not surprising to find discrepancies between the current findings and those stemming from studies of adult athletes in terms of what mental attributes are perceived to be most pertinent (e.g., Durand-Bush & Salmela, 2002).

Understanding the techniques reported to be employed by young athletes can provide some foundation on which to develop and more effectively implement MST programs. The current sample of athletes had no prior experience of MST or other formal forms of psychological support. Therefore, any mental technique employed by these athletes has been learned intuitively through the experience of playing rugby (or other sports) or learned informally as taught or modeled by significant others within their sporting context. The current results support previous studies that have found mental techniques developed through natural learning experiences may be categorized into personal, team, and environmental strategies (Calmels, D’Arripe-Longueville, Fournier, & Soulard, 2003; Holt, Tink, Mandigo, & Fox, 2008). It seems prudent for sport psychology consultants, who are working with young athletes within a formal mental skills training program, to probe for and then build on such mental techniques already in the athlete’s repertoire. Mental techniques reported by the study’s participants included goal setting, relaxation, self-talk, and visualization. Vealey (2007) noted that these are the four traditional mental techniques most widely emphasized by sport psychologists. The present sample, however, also discussed the use of less commonly cited techniques that may not be as widely employed by consultants and/or formally reflected in the content of current MST programs. For example, compartmentalization was a personal strategy identified by the young elite rugby players in this study, but it has rarely been specifically targeted or referred to in the applied MST literature to date.

Other examples of less common mental techniques proposed by the young athletes were mostly a function of their participation in a team sport, such as the employment of team huddles and role clarification. The importance of team-based structures and strategies in the case of adult athletes was highlighted by Gould and colleagues (1999). They found that more and less successful Olympic teams differ on group-based influences, such as social and organizational factors (Gould et al.).

Taken in their totality, the present results hold implications for (a) the design of MST programs with young developing team sport athletes, (b) the evaluation of such programs, and (c) the training of sport psychologists working with youth athletes. When considering the content of MST programs, the current findings emphasize the benefit of a comprehensive needs analysis on the target population. Along this line, a number of authors have advocated for the integration of personal and sport-specific demands when planning interventions (e.g., Andersen, 2000; Gardner & Moore, 2005, 2006; Maher, 2007; Taylor, 1995). Gardner and

Moore (2006) noted that, “the practice of clinical sport psychology is logically focused on the development of a comprehensive and holistic understanding of the psychosocial reality of the athlete, as opposed to simplistically focusing on performance as often seen in applied sport psychology” (p. 9–10).

The present study has illustrated the breadth of mental qualities deemed necessary for the young talented athlete to ensure healthy and efficient development into elite sport that may be missed due to lack of prior assessment of athlete needs. For example, too few studies appear to consider broader life skills when implementing performance based interventions with youth athletes (Visek et al., 2009). The range of techniques employed by the youth athletes found in this and others studies (e.g., Calmels et al., 2003) also suggests that MST program designers should consider the inclusion of less commonly used mental techniques (e.g., the compartmentalization of negative as well as positive game performances).

The second implication of the current study relates to the evaluation of MST programs for youth athletes. MST research to date has commonly focused on outcomes relating to mental technique use (e.g., Fournier, Calmels, Durand-Bush, & Salmela, 2005), performance (e.g., Thelwell, Greenlees, & Weston, 2006), and psychological correlates of performance variability (e.g., anxiety, confidence; Daw & Burton, 1994). Within the MST (Vealey, 2007), youth development (Danish et al., 2007), and clinical sport psychology (Gardner & Moore, 2006) literatures, however, the promotion of personal well-being is held as a fundamental focus of psychological interventions. The common failure to provide outcome measures relating to athlete well-being (e.g., see Sheard & Golby, 2006 for an exception) and personal growth and development when evaluating the effectiveness of MST programs with young competitors is therefore perplexing.

The breadth of mental qualities revealed also suggests that MST programs should be appraised in terms of their capacity to promote self-regulation, quality of motivation and sustained dedication in young talented athletes (Duda et al., 2005). One framework for assessment that has recently gained support is the case formulation approach proposed by Gardner and Moore (2005, 2006). Their case formulation approach provides a comprehensive understanding of the athlete through the examination of contextual performance demands; skill level; situational demands; transitional and developmental issues; personal psychological characteristics; direction of attentional focus; and cognitive, affective, and behavioral responses of an athlete. Such assessment offers a more comprehensive view of the athlete(s) and therefore leads to evaluation and intervention foci more aligned with the broader aims of MST.

Finally, the discrepancy between the current results with youth athletes and those found with elite adult populations highlights the distinctive nature of sport psychology practice with younger athletes. Specifically, sport psychology training and experience with adult populations may not be sufficiently transferable to youth populations. In their heuristic of sport psychology service delivery, Poczwardowski and colleagues noted that the first of 11 factors a consultant should consider is their competency and professional boundaries (Poczwardowski, Sherman, & Henschen, 1998). The current findings underscore the requirement for consultants working with youth athletes to be competent in areas of developmental psychology and developmental psychopathology to best serve the broad range of youth athlete needs.

Limitations

While the findings of this study extend previous research, a number of limitations should be considered. First, the specific nature of the population and sport under investigation means that the current findings may not be directly generalizeable to other groups of young developing athletes. Specifically, the current sample was comprised of all male athletes, and the participants were all of the same European nationality. Furthermore, the young athletes participated in rugby union, which is a full contact interactive team sport. The nature of this sport may influence perceived psychological needs not found in other sports. Conversely, other sports may be perceived to require other mental qualities and entail the use of mental techniques not revealed by the current sample.

Second, the results reported are those perceived and self-reported by the athletes and represent their personal experiences and demands. A comprehensive view of the needs of the young athletes sampled would be further supported by the triangulation of findings with significant others such as parents and coaches. Finally, although no formal sport psychology training had previously been implemented with the current sample, this study did not account for any prior informal instruction of mental techniques by significant others such as coaches, parents, and fellow rugby players.

Conclusion

To better tailor MST interventions for youth athletes, sport psychologists should consider the integration of psychological, social, physical, technical, and logistical demands of the sport with the needs of the athlete (Gardner & Moore, 2005, 2006; Taylor, 1995). To that end, the current study focused on the needs of youth athletes in the specializing stage as they develop into elite performers. The findings highlight the need to carefully investigate the targeted population in the contexts of the sport and stage of development before drawing conclusions regarding the priority of psychological qualities for youth athletes. Our results also point to the potential role of MST in promoting greater personal well-being and self-reliance among athletes along with the outcome of prolonged performance success (Vealey, 2007).

This study also investigated the current mental techniques employed by youth elite athletes. Results suggest that a large number of personal and team-based strategies are naturally employed by athletes without prior formal intervention. Such strategies include both traditional and less commonly cited mental techniques that should all be considered within a youth athlete development program. It would seem prudent for any MST program geared for such a population to take into account the variability of techniques in use and also reinforce and refine the techniques already being effectively employed.

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References

- Andersen, M.B. (2000). Beginnings: Intakes and the initiation of relationships. In M.B. Andersen (Ed.), *Doing sport psychology* (pp. 3–16). Champaign, IL: Human Kinetics.
- Baker, J., & Horton, S. (2004). A review of primary and secondary influences on sport expertise. *High Ability Studies*, 15, 211–228.
- Bandura, A. (1977). *Social learning theory*. New York: General Learning Press.
- Beauchamp, P.H., Halliwell, W.R., Fournier, J.F., & Koestner, R. (1996). Effects of cognitive-behavioral psychological skills training on the motivation, preparation and putting performance of novice golfers. *The Sport Psychologist*, 10, 157–170.
- Boutcher, S.H., & Rotella, R.J. (1987). A psychological skills education program for closed-skill performance enhancement. *The Sport Psychologist*, 1, 127–137.
- Butler, R., & Hardy, L. (1992). The performance profile: Theory and application. *The Sport Psychologist*, 6, 253–264.
- Calmels, C., D'Arripe-Longueville, F., Fournier, J.F., & Soulard, A. (2003). Competitive strategies among elite female gymnasts: An exploration of the relative influence of psychological skills training and natural learning experiences. *International Journal of Sport and Exercise Psychology*, 1, 327–352.
- Côté, J., & Hay, J. (2002). Children's involvement in sport: A developmental perspective. In J.M. Silva & D.E. Stevens (Eds.), *Psychological foundations of sport* (pp. 484–502). London: Allyn & Bacon.
- Côté, J., Salmela, J., Baria, A., & Russel, S. (1993). Organizing and interpreting unstructured qualitative data. *The Sport Psychologist*, 7, 127–137.
- Danish, S.J., Petitpas, A.J., & Hale, B.D. (1993). Life development intervention for athletes: Life skills through sports. *The Counseling Psychologist*, 21, 352–385.
- Danish, S.J., Petitpas, A., & Hale, B.D. (2007). Sport as a context for developing competence. In D. Smith & M. Bar-Eli (Eds.), *Essential readings in sport and exercise psychology* (pp. 412–422). Champaign, IL: Human Kinetics.
- Daw, J., & Burton, D. (1994). Evaluation of a comprehensive psychological skills training program for collegiate tennis players. *The Sport Psychologist*, 8, 37–57.
- Duda, J.L., Cumming, J., & Balaguer, I. (2005). Enhancing athletes' self-regulation, task involvement, and self-determination via psychological skills training. In D. Hackford, J.L. Duda, & R. Lider (Eds.), *Handbook of applied sport psychology research* (pp. 143–165). Morgantown, WV: Information Technology.
- Duda, J.L., & Treasure, D.C. (2001). Toward optimal motivation in sport: Fostering athletes' competence and sense of control. In J.M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (pp. 43–62). Mountain View, CA: Mayfield.
- Durand-Bush, N., & Salmela, J.H. (2002). The development and maintenance of expert athletic performance: Perceptions of world and Olympic champions. *Journal of Applied Sport Psychology*, 14, 154–171.
- Fournier, J., Calmels, C., Durand-Bush, N., & Salmela, J. (2005). Effects of a season-long PST program on gymnastic performance and on psychological skill development. *International Journal of Sport and Exercise Psychology*, 3, 59–77.
- Gardner, F., & Moore, Z. (2005). Using a case formulation approach in sport psychology consulting. *The Sport Psychologist*, 19, 430–445.
- Gardner, F.L., & Moore, Z.E. (2006). *Clinical sport psychology*. Champaign, IL: Human Kinetics.
- Golby, J., & Sheard, M. (2004). Mental toughness and hardiness at different levels of rugby league. *Personality and Individual Differences*, 37, 933–942.
- Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14, 172–204.

- Gould, D., Guinan, D., Greenleaf, C., Medbery, R., & Peterson, K. (1999). Factors affecting Olympic performance: Perceptions of athletes and coaches from more and less successful teams. *The Sport Psychologist*, 13, 371–394.
- Gould, D., Tuffey, S., Udry, E., & Loehr, J. (1996). Burnout in competitive junior tennis players: II. Qualitative analysis. *The Sport Psychologist*, 10, 341–366.
- Grove, J.R., & Hanrahan, S.J. (1988). Perceptions of mental training needs by elite field hockey player and their coaches. *The Sport Psychologist*, 2, 222–230.
- Holt, N.L., & Dunn, J.G.H. (2004). Toward a grounded theory of the psychosocial competencies and environmental conditions associated with soccer success. *Journal of Applied Sport Psychology*, 16, 199–219.
- Holt, N., Tink, L., Mandigo, J., & Fox, K. (2008). Do youth learn life skills through their involvement in high school sport? A case study. *Canadian Journal of Education*, 31, 1–8.
- Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology*, 14, 205–218.
- Jones, M.I., & Lavallee, D. (2009). Exploring the life skills needs of British adolescent athletes. *Psychology of Sport and Exercise*, 10, 159–167.
- Krane, V., & Williams, J.M. (2006). Psychological characteristics of peak performance. In J.M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (5th ed., pp. 207–227). New York: McGraw-Hill.
- Lerner, R.M., Lerner, J.V., Almerigi, J., Theokas, C., Phelps, E., Naudeau, S., et al. (2006). Toward a new vision and vocabulary about adolescence: Theoretical and empirical bases of a “positive youth development” perspective. In L. Balter & C.S. Tamis-LeMonda (Eds.), *Child psychology: A handbook of contemporary issues* (pp. 445–469). New York: Taylor & Francis.
- Litoselliti, L. (2003). *Using focus group in research*. London: Continuum.
- Lutkenhouse, J.M. (2007). The case of Jenny: A freshman collegiate athlete experiencing performance dysfunction. *Journal of Clinical Sport Psychology*, 1, 166–180.
- Maher, C.A. (2007). Case study commentary: Addressing the personal and performance needs of a collegiate student-athlete. *Journal of Clinical Sport Psychology*, 1, 190–197.
- Mahoney, M.J., Gabriel, T.J., & Perkins, T.S. (1987). Psychological skills and exceptional athletic performances. *The Sport Psychologist*, 1, 181–199.
- Morgan, D. (1997). *Focus groups as qualitative data* (2nd ed.). London: Sage.
- Orlick, T., & Partington, J. (1988). Mental links to excellence. *The Sport Psychologist*, 2, 105–130.
- Patton, M.Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.
- Poczwardowski, A., Sherman, C., & Henschen, K. (1998). A sport psychology service delivery heuristic: Building on theory and practice. *The Sport Psychologist*, 12, 191–207.
- Rabiee, F. (2004). Focus-group interview and data analysis. *The Proceedings of the Nutrition Society*, 63, 655–660.
- Rubin, H., & Rubin, I. (2005). *Qualitative interviewing: The art of hearing data* (2nd ed.). London: Sage.
- Rutter, M., & Sroufe, L.A. (2000). Developmental psychopathology: Concepts and challenges. *Development and Psychopathology*, 12, 265–297.
- Scanlan, T.K., Stein, G.L., & Ravizza, K. (1989). An in-depth study of former elite figure skaters: II. Sources of enjoyment. *Journal of Sport & Exercise Psychology*, 11, 65–83.
- Scanlan, T.K., Stein, G.L., & Ravizza, K. (1991). An in-depth study of former elite figure skaters: III. Sources of stress. *Journal of Sport & Exercise Psychology*, 13, 103–120.
- Shaffer, D.R., & Kipp, K. (2009). *Developmental psychology: Childhood and adolescence* (8th ed.). Belmont, CA: Wadsworth.

- Sheard, M., & Golby, J. (2006). Effect of a psychological skills training program on swimming performance and positive psychological development. *International Journal of Sport and Exercise Psychology*, 4, 149–169.
- Taylor, J. (1995). A conceptual model for integrating athletes' needs and sport demands in the development of competitive mental preparation strategies. *The Sport Psychologist*, 9, 339–357.
- Thelwell, R.C., Greenlees, I.A., & Weston, N.J.V. (2006). Using psychological skills training to develop soccer performance. *Journal of Applied Sport Psychology*, 18, 254–270.
- Vealey, R. (1988). Future directions psychological skills training. *The Sport Psychologist*, 2, 318–336.
- Vealey, R. (2007). Mental skills training in sport. In G. Tenenbaum & R. Eklund (Eds.), *Handbook of sport psychology* (3rd ed., pp. 287–309). Chichester: John Wiley and Sons.
- Visek, A.J., Harris, B.S., & Blom, L.C. (2009). Doing sport psychology: A youth sport consulting model for practitioners. *The Sport Psychologist*, 23, 271–291.
- Zimmerman, B.J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41, 64.